

METHOD FOR PRODUCING A SOFT MAGNETIC MATERIAL

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ABSTRACT OF THE DISCLOSURE

10 The invention provides a method for preparing a soft magnetic material which meets demands for low iron loss, high density, high strength and high productivity. The method comprises a surface oxidation step of forming oxide films on the surfaces of a soft magnetic powder, a step of preparing a molding compound of the soft magnetic powder by mixing a soft magnetic powder and a binder with  
15 a predetermined blending ratio, a press molding step of press-molding the molding compound of the soft magnetic powder into a predetermined shape, and a sintering step of sintering the press-molded soft magnetic powder to produce a soft magnetic material, wherein a millimeter  
20 wave sintering apparatus or a discharge plasma sintering apparatus is used as a heating means in the surface oxidation step or in the sintering step. Thereby, energy of millimeter waves or discharge plasma acts locally on oxidized surface portions having a large electric  
25 resistance of the soft magnetic powder, the surfaces of the soft magnetic powder are locally heated at a temperature near the melting point, and oxidation of the surfaces of the soft magnetic powder (formation of an oxide film) and sintering (diffusional joining between  
30 oxide films) are promoted.